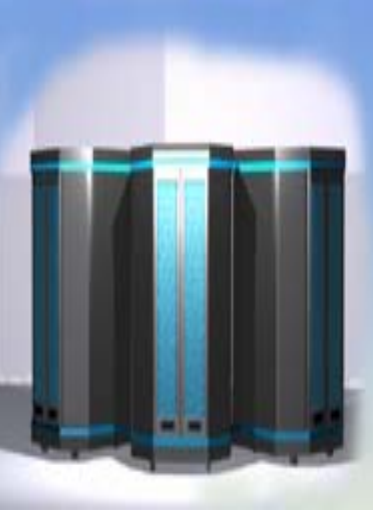

High Performance Computing Software

JPL Internal Seminar Series

Parallel Particle-in-Cell Codes in Plasma Physics

by

Viktor Decyk

Thursday, November 13, 2003
12:00 noon – 1:00 p.m.
Building 126, Room 225

PIC codes, which integrate the trajectories of charged particles in the electromagnetic fields they generate, are widely used in plasma physics. The first parallel versions were developed in 1987 at JPL. Advances in hardware and algorithms now allow problems as large as 12 billion interacting particles on a 1024 cubed mesh to be run on a 2000 CPU system in about 10 seconds/time step. A single dual processor Macintosh G5 now gives the same performance as the entire Intel Delta machine did ten years ago. Issues in achieving high performance and the development of a general framework for parallel PIC will be discussed.

For questions, please contact Dan Katz at 4-7359.